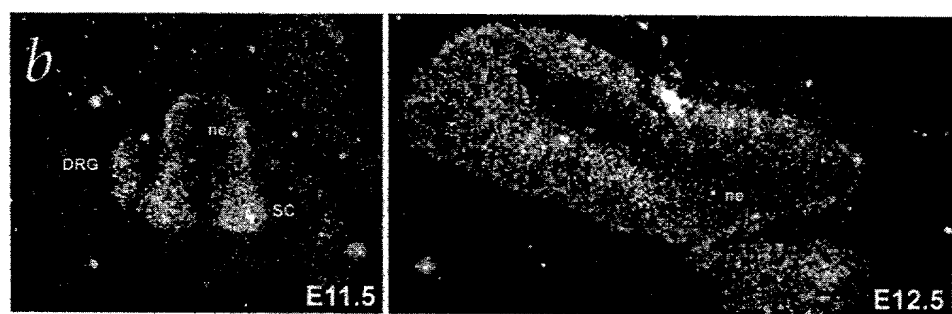
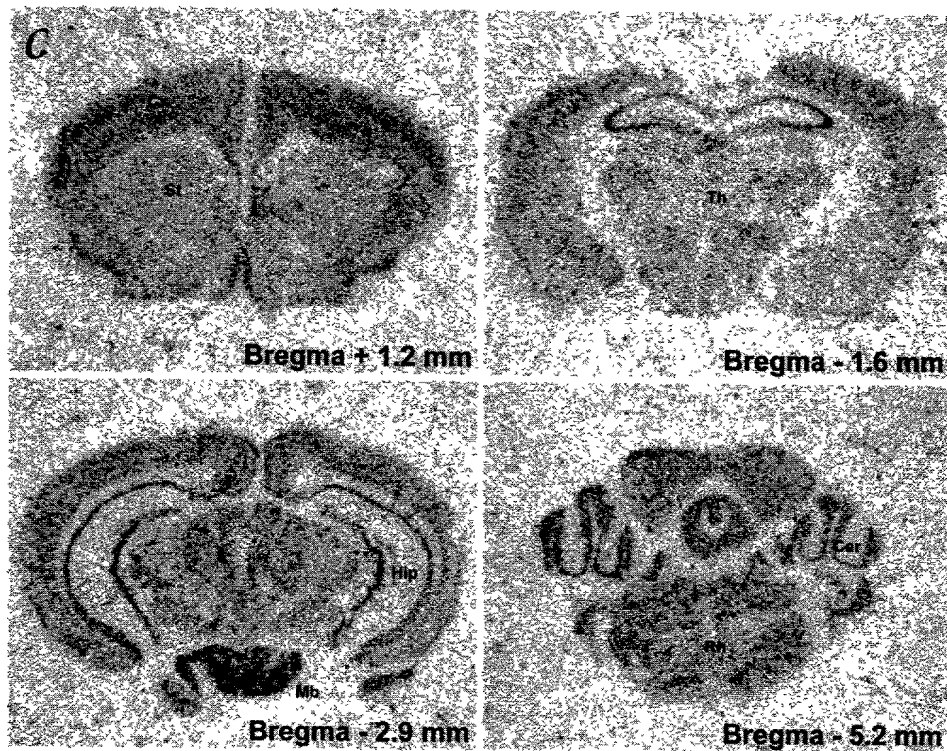


**FIG. 1A**

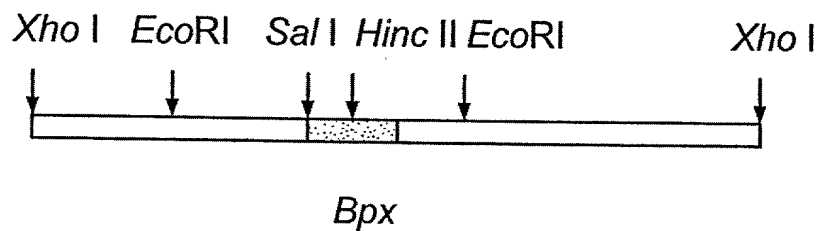


**FIG. 1B**

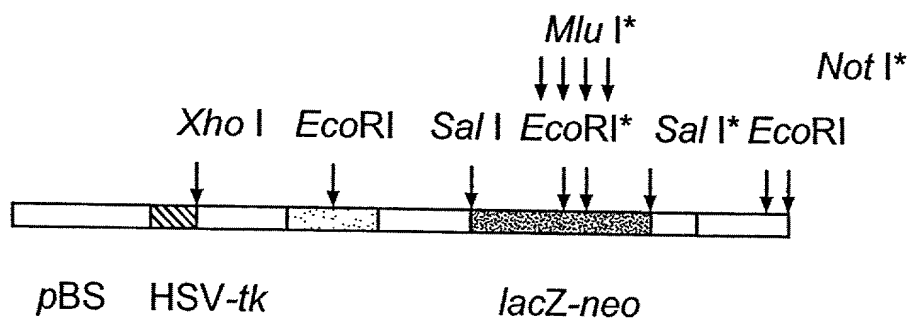


**FIG. 1C**

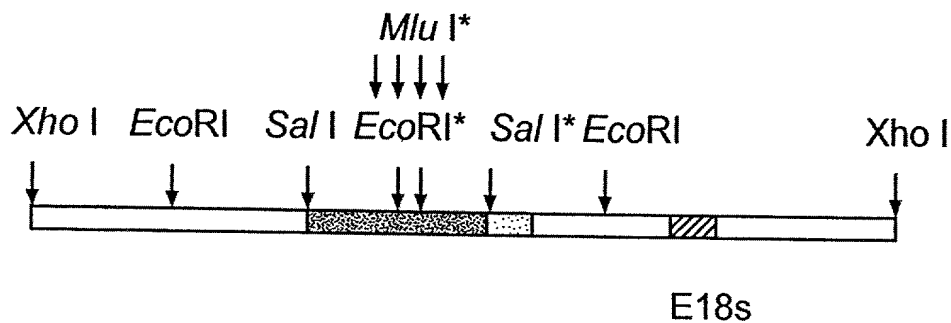
**FIG. 2A**



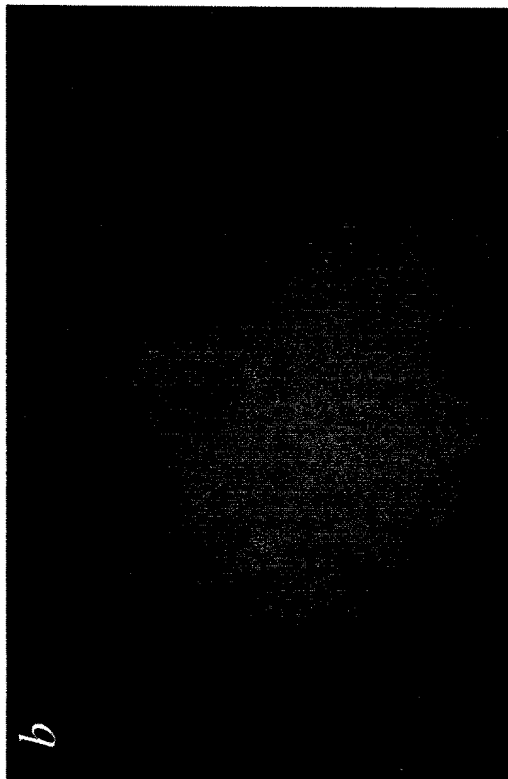
**FIG. 2B**



**FIG. 2C**

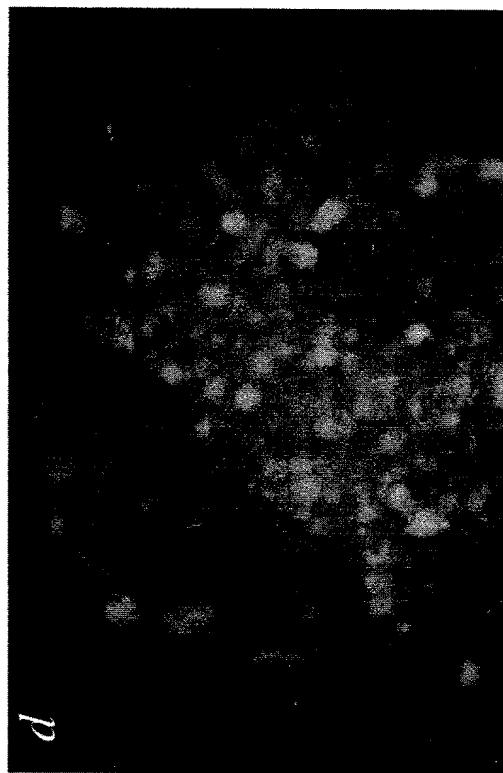


\* INTRODUCED SITES



**FIG. 3A**

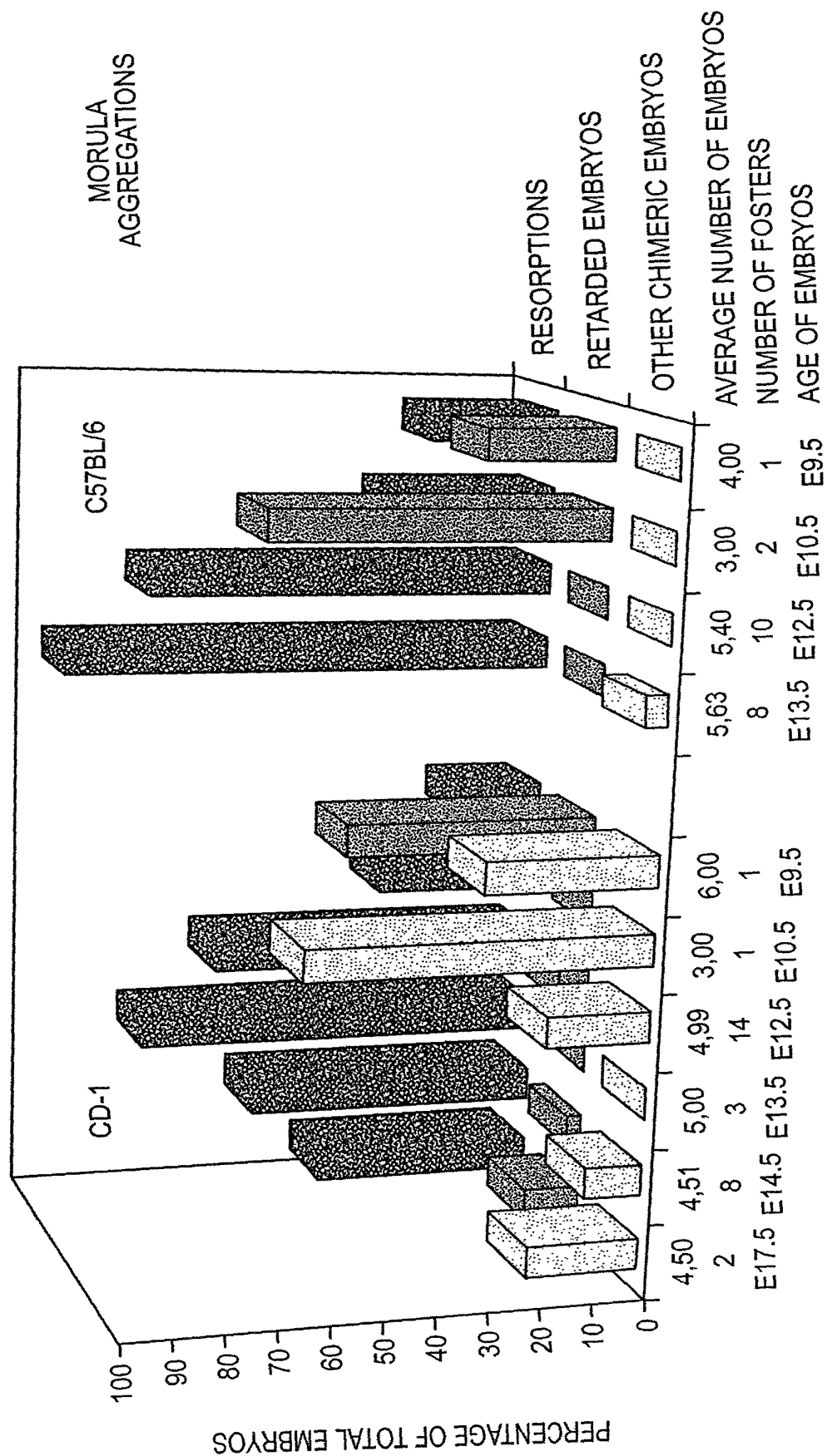
**FIG. 3B**



**FIG. 3C**

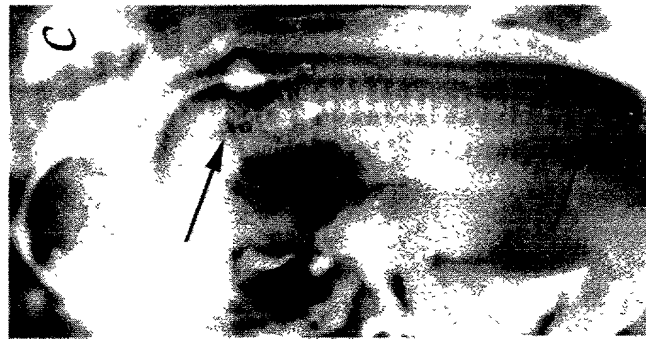
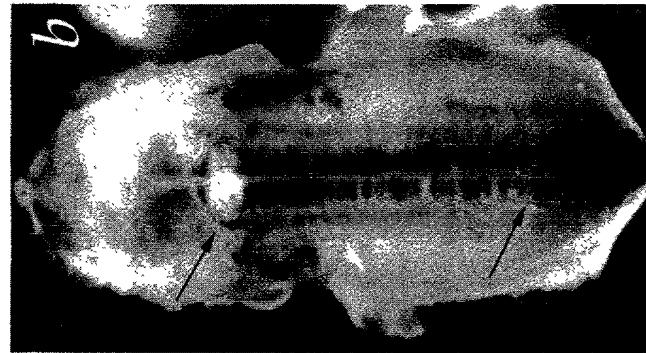
**FIG. 3D**

FOOTNOTES

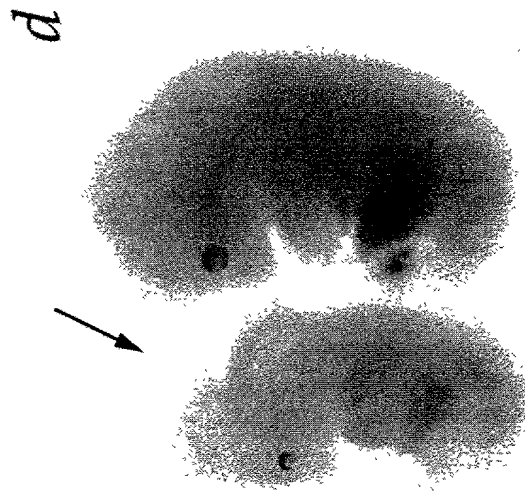
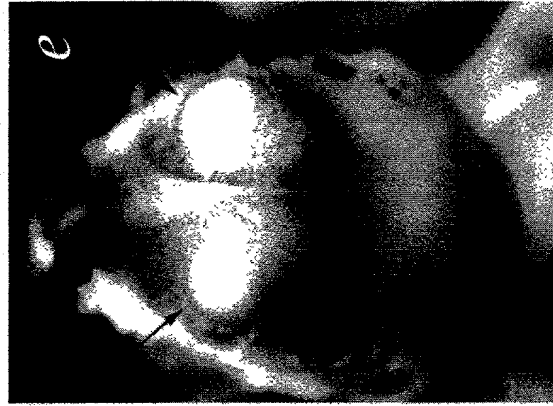


**FIG. 4**

E12.5



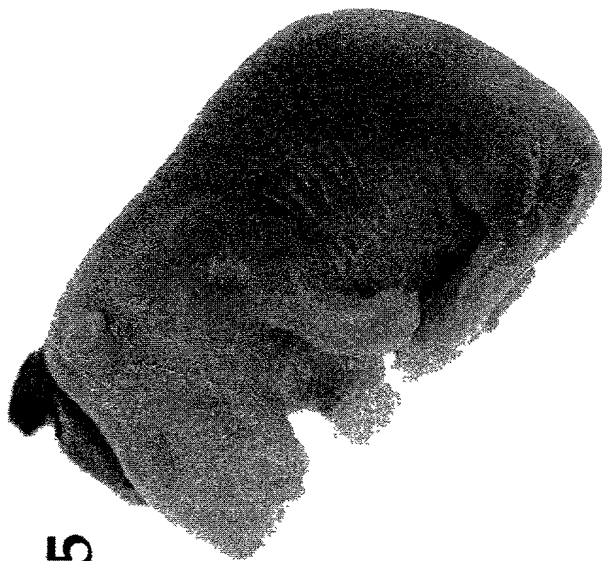
**FIG. 5E**



**FIG. 5D**

**FIG. 5A FIG. 5B FIG. 5C**

E17.5



E14.5



**FIG. 5F**

**FIG. 5G**



**E10.5**



**E9.5**

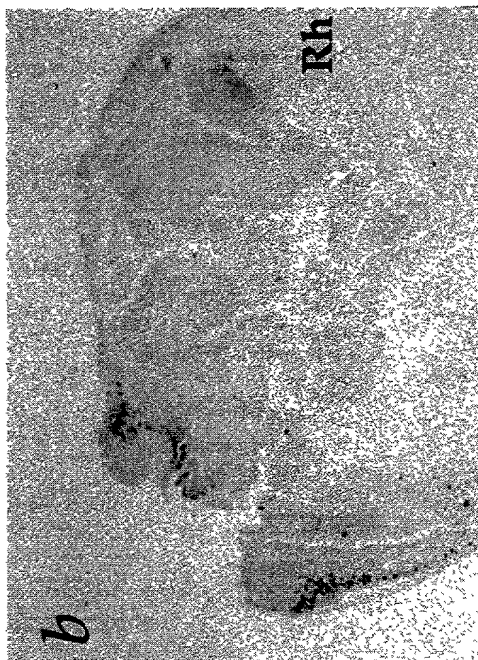


**FIG. 5H**

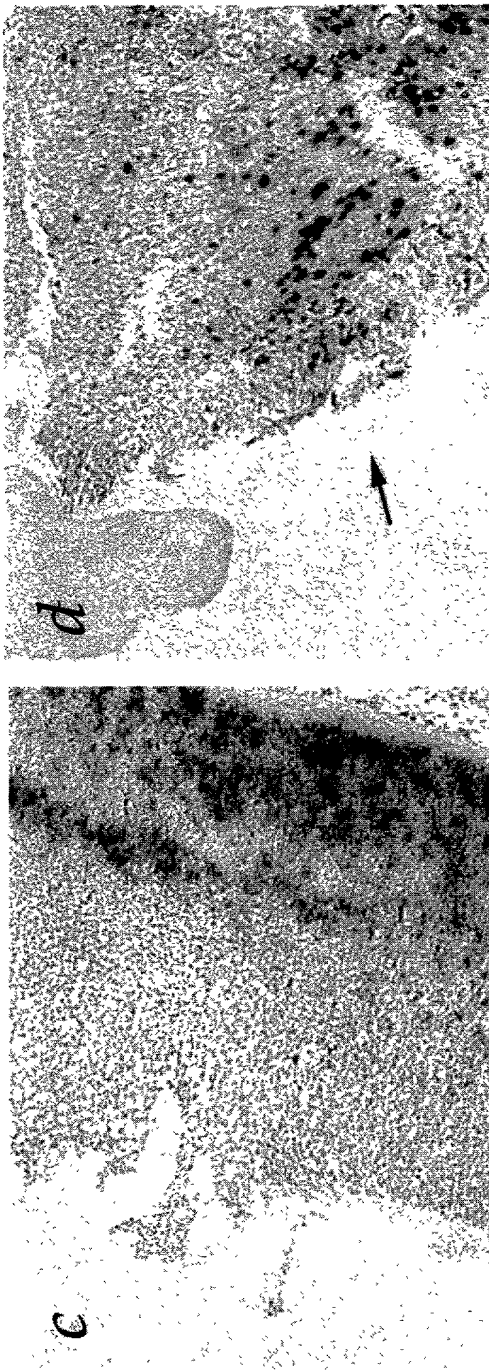
**FIG. 5I**



**FIG. 6A**

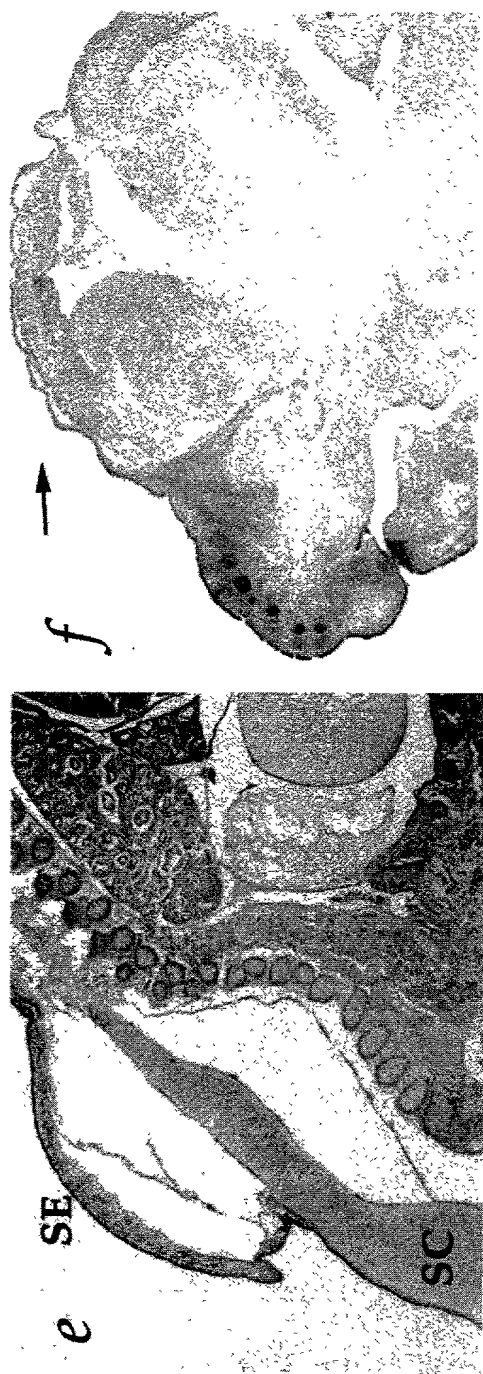


**FIG. 6B**



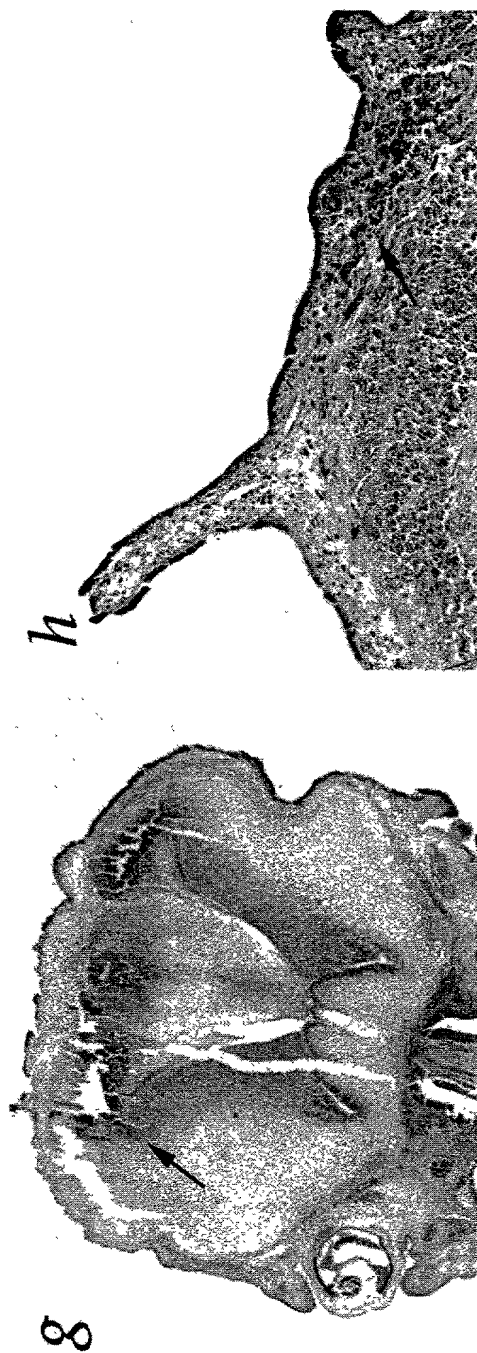
**FIG. 6C**

**FIG. 6D**



**FIG. 6E**

**FIG. 6F**



**FIG. 6H**

**FIG. 6G**

SEQUENCE CLONE *Bpx* PROMOTER MURIN SPEI-SALI FRAGMENT

ACTAGTCATATAGCTGGCTCTTTTACAAAAGGCTTCAACACCCCCTCCCC  
CACACTTTAGTCATCCGTCATCTCTTCCTCATCAGGAAATATTATGAGAA  
TTTTCCCATTTTAAAATCACACAGGTTGTGAAAATTACAGAAACCAGGGTA  
CAGAATATTTAAACCACTGTCAGTTACATCATCCAAGGCCACCTATGCT  
TATTTTTGGTAATTTTAAACCTCAAAGGATCTCTTTGTGGGCTCCTCCACT  
ACCCTCCTCTCTTTCCCAGAGCCTCAGGTTATAACCAAAGGGATAGACTA  
AAGACAATCCAGTACCTTGCCCATTTTTTTTCATTTCCTTGTCACCTGTTTCCA  
TATAGCTCTTTTGAAATTATGAACATATAGTATCAGTTGAAAACGGAATG  
AATGATACTGCATTTCTGCAAAATTCCACAGGCTATAGGGTGGAAGATG  
AGCCATAGGTGGAGGAATCAGCCATATTAGAGAATCTGGGAAGGCAAG  
AGGTGTTGAAATTTTGATTCTACTAATTTACTGGCTCAGGATTTGTC  
AATCACTGCAGCCTGGCAAATGAGATTAGAGAAGAGTCCTGGGAGGGA  
AGGGGTGACGCAGCAACCTGCATACACTTAAAAAAAAGAGCTGAGAG  
ACAACCTGCGTAATCATACTGCGGCACCAGTTTCCTCCATCCCTCCGCCCC  
GAGTGGCTGGAGCAGCTGCTTGCGGAGGTCTGCCCACTGCGGCTCTCTG  
CAGTCTCTAGCCTGTTTCCTTCAGGGCCTAGAGTCTCCGCCCAGACAGCCG  
GTTTCAATTCTGCTATCCCAGCTTCAGCACCGTCTTTTATACTGCTTGCTG  
CCTGCCATCAGTGCAGCCGCCGCCCTCTTGGTTCATCTCTGCCAGATC  
ATCGCGCATCTGCTGTATTGGTGAGTCTTCCTGCGGAGGTCAGGTCTCCT  
GATCTGCGGGCTTAGCCACCATAAGTGCAGGCGATCGTTTGAAAACAAT  
GGCTGAATCAGTCGACCTCGAGGGGGGGCGTACCTTGCCCATTTTTTTTCA  
TTCCTTGTCACCTGTTTCCATATAGCTCTTTTGAAATTATGAACATATAGTA  
TCAGTTGAAAACGGAATGAATGATACTGCATTTCTGCAAAATTCCACAG  
GCTATAGGGTGGAAGATGAGCCATAGGTGGAGGAATCAGCCATATTAGA  
GAATCTGGGAAGGCAAGAGGTGTTGAAATTTTGATTCTACTAATTTA  
CTGGCTCAGGATTTGTCAATCACTGCAGCCTGGCAAATGAGATTAGAGA  
AGAGTCCTGGGAGGGAAGGGGTGACGCAGCAACCTGCATACACTTAAA  
AAAAAAGAGCTGAGAGACAACCTGCGTAATCATACTGCGGCACCAGTTCC  
TCCATCCCTCCGCCCCCGAGTGGCTGGAGCAGCTGCTTGCGGAGGTCTG  
CCCCTGCGGCTCTCTGCAGTCTCTAGCCTGTTTCCTTCAGGGCCTAGAGT  
CTCCGCCCAGACAGCCGTTTCAATTCTGCTATCCCAGCTTCAGCACCGT  
CTTTTATCCCCACTGCTTGCTGCCTGCCATCAGTGCAGCCGCCGCCCT  
CTTGGTTCATCTCTGCCAGATCATCGCGCATCTGCTGTATTGGTGAGTCT  
TCCTGCGGAGGTCAGGTCTCCTGATCTGCGGGCTTAGCCACCATAAGTG  
CAGGCGATCGTTTGAAAACAATGGCTGAATCAGTCGAC

[SEQ ID NO:1]

**FIG. 7**

# SEQUENCE *Bpx* MURIN cDNA IDENTICAL TO GENOMIC DNA

GTACCTTGCCCATTTTTTTCATTCCTTGTCAGTGTTCATATAGCTCTTTT  
GAAATTATGAACATATAGTATCAGTTGAAAACGGAATGAATGATACTGC  
ATTTCTGCAAAATTCCACAGGCTATAGGGTGGAAGATGAGCCATAGGTG  
GAGGAATCAGCCATATTAGAGAATCTGGGAAGGCAAGAGGTGTTGAAAT  
TTTGATTTCATCTACTAATTTACTGGCTCAGGATTTGTCAATCACTGCAGC  
CTGGCAAATGAGATTAGAGAAGAGTCCTGGGAGGGAAGGGGTGACGCA  
GCAACCTGCATACACTTAAAAAAAAGAGCTGAGAGACAACTGCGTAAT  
CATACTGCGGCACCAGTTCCTCCATCCCTCCGCCCCGAGTGGCTGGAG  
CAGCTGCTTGCGGAGGTCTGCCCACTGCGGCTCTCTGCAGTCTCTAGCCT  
GTTCTTCAGGGCCTAGAGTCTCCGCCCAGACAGCCGGTTTCAATTCTGC  
TATCCCAGCTTCAGCACCGTCTTTTATCCCCACTGCTTGCTGCCTGCCATC  
AGTGCAGCCGCCGCCGCTCTTGTTTCATCTCTGCCAGATCATCGCGCAT  
CTGCTGTATTGGTGAGTCTTCCTGCGGAGGTGAGGTCTCCTGATCTGCGG  
GCTTAGCCACCATAAGTGCAGGCGATCGTTTGAAAACAATGGCTGAATC  
AGTCGACCATAAAGAACTGTCTGAATCCAACCAAGAAGAGCTTGGCAGC  
CAGGTAATGGCGGAGGGGGCCGGGGAAGTCAGGACCGCAGTGAAGGT  
GTCTCCATTGAGCCTGGAGATGGCGGGCAACATGGTGAAGAAACCGTGG  
CTGCTGGAGTAGGGGAAGAGGGGAAAAGGTGAAGAAGCTGCTGCAGGGT  
CTGGGGAAGATGCTGGGAAGTGCGGAGGCACTGATGAGGACTCAGACT  
CAGACCGTCCAAAAGGACTTATCGGTTATCTTTTAGATACCGATTTTCGTT  
GAAAGTCTCCAGTGAAAGTTAAGTGCCGAGTGCTAGCTCTTAAAAAGC  
TTCAAACAAGAGCTGCCCATTGGAATCGAAATTCCTGAGGGAATTTTCAT  
GACATTGAAAGGAAGTTTGCTGAAATGTACCAACCCTTACTAGAAAAAA  
GACGACAGATCATCAATGCAGTCTATGAGCCACAGAAGAGGAATGTGA  
GTATAAATCGGACTGTGAGGACTATTTTGAGGAGGAGATGGATGAGGAG  
GAAGAGACTAACGGCAACGAAGACGGTATGGTGCATGAATACGTGGAT  
GAAGATGATGGTTATGAGGACTGTTATTATGATTATGATGACGAGGAAG  
AAGAGGAGGAGGAAGATGACAGCGCTGGGGCCACCGGAGGAGAAGAG  
GTTAACGAAGAGGATCCTAAGGGGATTCCGGATTTTTTGGTTGACTGTTTT  
AAAAAATGTTGAAGCACTCACTCCTATGATTAAGAAATATGATGAGCCT  
ATTCTGAAGCTGCTGACAGATATTAAAGTGAAGCTTTCGGATCCCGGGG  
AGCCTCTCAGCTTCACACTCGAATTTCACTTCAAGCCCAATGAATATTTT  
AAAAATGAGCTGTTGACAAAGACTTATGTGCTGAAGTCAAAGCTTGCAAT  
GCTACGATCCCCACCCTTATAGGGGAACTGCCATTGAGTACGCCACTGG  
CTGCGACATAGATTGGAACGAAGGGAAGAATGTCACTTTGAGAACCATC  
AAGAAGAAGCAGAGACATCGCGTCTGGGGAAGTGTCCGAAGTGTGACTG  
AAGATTTTCCCAAGGACTCTTTCTTCAATTTCTTCTCTCCTCATGGGATCA  
GCTTAAATGGAGGGGATGAAAATGATGATTTTTTACTTGGTCATAATCTG

**FIG. 8**

CGTACTTACATAATTCCAAGATCAGTGTTATTTTTCTCAGGAGATGCACT  
TGAATCTCAGCAGGAGGGTGTAGTTAGGGAAGTTAATGACGAAATATAT  
GACAAAATTATTTATGATGATTGGATGGCTGCAATTGAAGAGGTAAAG  
CCTGTTGCAAAAATCTTGAGGCATTAGTAGAAGATATTGATCGTTAAAC  
AGAGTAGATGCTTTTGAACTAACTGCTCTACATGCAGTTACTGAAGACA  
TAAGCAGTTAATATTGTCTTGTGTTCTGCATTTTTTCCTGTCATGCCAGTT  
TAAAAATTCAAATACTAATTAATCTGACCTTGCATTGTAGTGGTATGATG  
TTTTCAAGACATGTAGACTGTGATAAATGATTAAGACATTAATAGTCTGT  
AGTATAACCCCTTCTGAAGTCCTTGTGCCATGTATCTATTAATCTGTGGCT  
GTGAATATTATTAGAAGTGCTAAATGAGATTATTTGTTTGCAAAGAAAAT  
ATTGGAAACCTACCTAAGAGTGCTTTGCTATTTTCCCCCTTATCCTCTTAG  
TGCTTTGGCCAATTGACTTTATTGTGCCTGCTTCATTTTGCAGTAAATATG  
CAGTAGAATTTAAACTTGAATGCCTAAGAGGCCTGCATATGATTGAGA  
ATTTCAGGCAAATCATATTTATTATTGATAACAGCTAGTGCAAGGCTTC  
TGATTGTATGTGACTGTGATAAATAATAAACTCAATTGTATTGAAGTTA  
CTGTTTATCATTGACATGTGAGTTACAGTATTTTCAAATGTTGCAAATATT  
GTCCTGTGTAATTGTGTAACTGTGATTACAGTGTACATTTTTTTCATAAT  
ATACTGAATCATTCAATTGAAATGGACACTTACCATTTCTGAAAATACAT  
TTCATATTCTGTTCACTGAAAAATAAAATGAATAAAAATTT

[SEQ ID NO:2]

**FIG. 8**  
**CONTINUED**



*Bpx* HUMAN cDNA IDENTICAL TO GENOMIC DNA

TGTTAGAGAGCCTGGGAAGGTGAGcAGAGcTGAAAACCTTGATAGATCTA  
ATAATTTACTGGCTCTGGGTTTGTCTAGTCACTACATTGCAGCAAATGAGA  
TTAGAGCATAGTTGTGGGAGGGAAGGAGGTGACGCAGCAATCTATTTGC  
ACCTAGAAATTTTAGGCAAGTGATAGCTGCGTAATCATACTGCGGCACC  
GTTTTTTTTCTTGACAGCAGTAGCTGCTTGCGGAGGAGGTCTGCCCACTGCA  
GCTCTCTGCAGTCTCCGGCTCTCTCCTGCAGGATCGGTCAACGCAGCCGT  
CGCCGCCCTCTGCACCCAGCCCAGGTGCGCACTGCTTCAGTCCGGTTCTC  
AAAGCCTCAGCACCATCTTTTATCCCCGAGCAGCCTGGATCGTCGTTCCC  
TCAGTCCGGACGCCACTGCTAGGTCCGACCACCGCCGCTTCTGATATTTT  
GGTGAGTCTTTTCTGTGGAGGTTTGGTCTCCCGATCTCTGTGGTAGCCA  
CCTTAGGCGTGTACGGTCCTTTGAAAAATGGCCGAGTCAGAGAACCGCA  
AGGAGCTGTCAGAATCCAGTCAAGAAGAGGCTGGTAATCAGATAATGGT  
GGAAGGGCTCGGGGAACATCTGGAGCGCGGTGAAGATGCCGCTGCTGG  
GCTTGAGACGATGGGAAGTGCGGTGAAGAAGCTGCCGCTGGGCTTGG  
GGAAGAAGGGGAAAACGGTGAAGATACTGCTGCTGGGTCCGGGGAAGA  
TGGGAAAAAAGGTGGCGATACTGATGAGGACTCAGAGGCAGACCGTCC  
AAAAGGACTTATC  
GGTTATGTTTTAGATACAGACTTTGTTGAAAGTCTACCTGTGAAAGTTAA  
GTACCGTGTGTTAGCCCTTAAAAAGCTTCAAACCTAGAGCGGCCAATTTA  
GAATCCAAATTCCTGAGGGAATTTTCATGACATTGAAAGAAAGTTTGCTG  
AAATGTACCAACCCTTACTGGAAAAAAGACGTCAGATCATCAATGCAAT  
CTATGAACCTACAGAAGAGGAATGTGAATATAAATCAGACTCTGAGGAC  
TGTGATGATGAGGAAATGTGTCATGAAGAGATGTATGGTAATGAGGAGG  
GTATGGTACATGAATATGTGGATGAGGACGATGGTTATGAGGACTATTA  
TTATGATTATGCTGTGGAAGAGGAGGAGGAGGAGGAGGAGGAGGACGA  
CATTGAGGCTACTGGAGAAGAGAATAAAGAAGAGGAGGATCCTAAGGG  
AATTCCTGATTTTTGGCTAACTGTTTTAAAAACGTTGATACACTCACTC  
CTTTGATTAAAGAAATATGATGAGCCTATTCTGAAGCTCCTGACAGATATT  
AAAGTTAAGCTTTCAGATCC

**FIG. 9**

TGGCGAGCCCCTCAGTTTCACACTAGAATTTCACTTCAAACCCAATGAAT  
 ATTTCAAAAATGaGTTGTTGACAAAGACCTATGTGCTGAAGTCAAAGCTA  
 GCATATTATGATCCCCATCCCTATAGGGGAACTGCGATTGAGTATTCCAC  
 AGGCTGTGAGATAGATTGGAATGAAGGAAAGAATGTCACTTTGAAAACC  
 ATCAAGAAGAAACAGAAACATCGGATCTGGGGAACAATCCGAAGTGTA  
 CTGAAGATTTTCCCAAGGATTCATTTTCAATTTTTCTCTCCTCATGGAA  
 TCACCTCAAATGGAAGGGATGGAAATGATGATTTTTTACTTGGTCACAAT  
 TTACGTACTTACATAATCCAAGATCAGTATTATTTTTCTCAGGTGATGCA  
 CTGGAATCTCAGCAGGAGGGGGTAGTTAGAGAAGTTAATGATGCAATTT  
 ATGACAAAATTATTTATGATAATTGGATGGCTGCAATTGAGGAAGTTAA  
 GCTTGTGCAAAAACCTTGAGGCATTAGTAGAAGACATTGATCGTTAGA  
 GCAGAGTATACATGGCCCTGAAATTAAGTgCCCTAGATATAGTTACTCAA  
 GGTATAAGAAgCCTTGTGTTCTGTATTTTgCTTTGTAGTGTTAGTTAAAC  
 ATATGTTTCAAAAATATAAGAAAAGTTCAAAAACATAATTTGACCTT  
 GAGTTTTAGTAGTAGAATGTTTTCAAGAAATGTACACTGTGGTAAATGAT  
 TAAAACACTAGTATAGTGTTGTGTAGCTTAATCCTTCTGAAGTCTTTTTG  
 TCATGTAGCTATTAATCTGTGGCTATGAAATGATCAGAAATGCTAAGTGA  
 GATCAATATTTGTTTGGAAAAAAATCTTGGGAAACAACCCAAGGGTTTT  
 CGCTGTTGTTGTTTTTCTTTTTCTATTTTTGTTTACTTAGTCCTTTAGCTAG  
 TGGATTTAATTTTGTGTGCCTGCTTCATTTTGCAATAACAATGCAGTAG  
 AATTTAAACTTGGATGCTTAAGAGGCCTGCATATAGATAAGAATTTTCAG  
 GCAAACTACATTTATTGTTAATAACAGCTTGTTTCATAGGCTCTTGATTTT  
 TATGTAAGTGTGATAAATAATGAAAAGTTAGTTATATTGAGGTTATTGTT  
 TGTCGGTGAAGTGTTAGTCACAGTATTTTCAAAGTTTGCACATATTGTT  
 CTGTGTAATTGTGTAAGCCATAATTACAGTGTTTAATTCTCTTTTCCTATT  
 ACATCATTCATTGAAAGTGATCACTTTACCATTTTGAAAAGATATTTTCGT  
 GTTCTTTCAGTGCAAAATAAAAAGAATAAAAATTTTCAGAGTGTCTCATGG  
 AATTCC

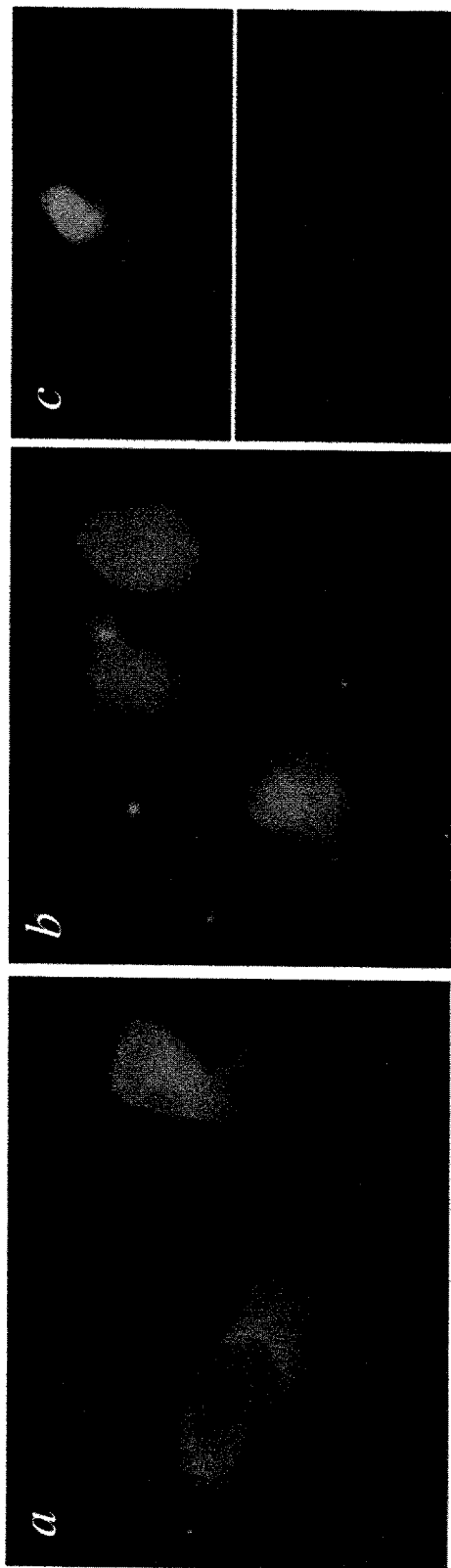
[SEQ ID NO:3]

**FIG. 9(CONT.)**

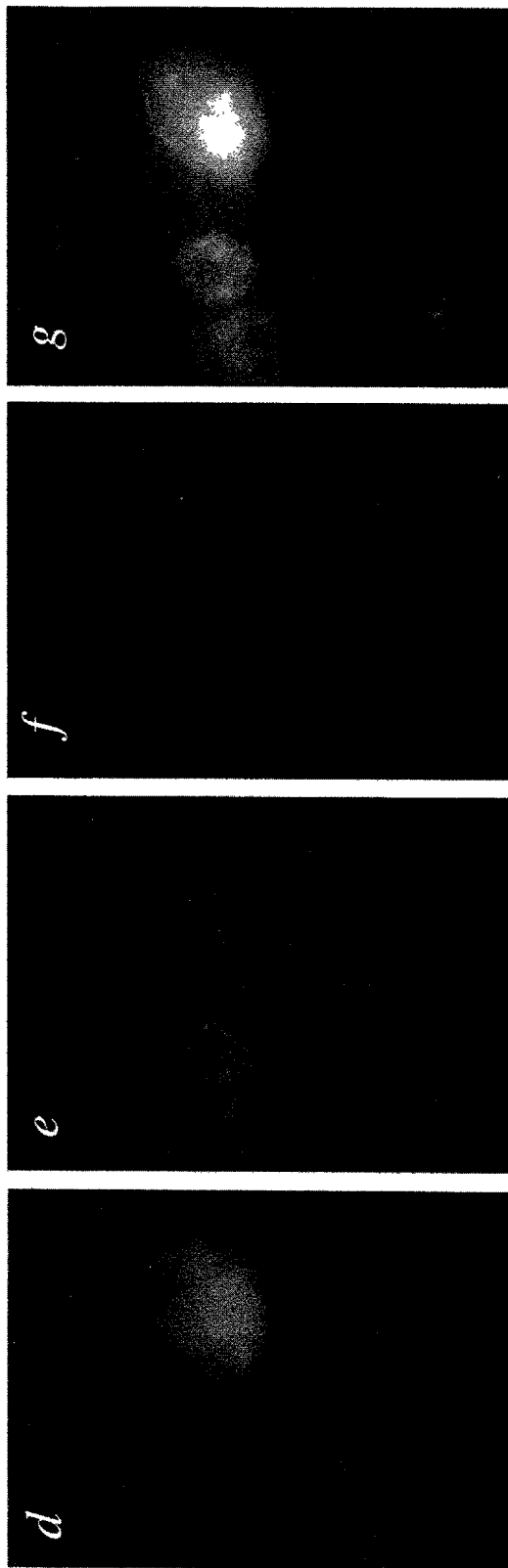
# HUMAN BPX 5' REGION

ACTTAAAGGAAAAATTTATCTATAAACTGACAGAATTTAGAAATAAATA  
 CAACAATATGTAAACAGTTTTAATATCTGTGATAGTAACAAATTCTTTAA  
 ATCTGGAAAATAATAGTCACTTAAAATTTTAAAAAATTGTTCAATTAATA  
 AATGATCCAAGTTAGAAATATGAACAAAATAAACCTCACCAATAATTAC  
 TATAGAGAGGAAATTTTAATTACTGCAAAGCTTTCATCCTATAAATACA  
 TTATCAAATAGTTTAACCATTTCTTTAATGCTGAGATTTAGATTATTTCCA  
 ATTAAC TCAAAGCATCAAGCAAATGTTATGATTTCTAAGAATAAACATA  
 ACTTTCCATTTTGGCTTTTGTATATATGTATATTTCTAACGGCTGTTAAAG  
 CCAGCATTAAGAAGGAGAAGCAGAAAGTCAGTATTGGGACTGGGGTTAT  
 TTATAAGCCAGGCAACTGGTTAATTGTGGTTAATTGCTCTGGTATGTTTAC  
 TAGTCACGTAGTTGTATACACCATACTAGTTTTTTCATCACAGGCCCTCAT  
 TCGCCCCCACTGCCATCGGACTTCCTCCTCCTCCCCCTCACAGGAAATGTT  
 TCGAGAATTTTTCAACCTAAAATCATATAGCTTGTGAAAAATACCGACAA  
 ACATAATATAGAATATTTAAATAACTGACACGCCACCTAAAGACCATCA  
 GTGCTAATTCCTGGTGTTTTTAATCTTTGAAGCGTTTGTTTATCAGCTCTT  
 CCACCATCCACCTCTCCCCCTCCCCAGGTCCCCGATCTAAAATCAAAGAG  
 ATTGATTTAGGATGGGTGGGTGCCTTGTCTTCTCTCATTGTTTCGACATTTT  
 AGTTACGTTTTTCTCTGAGCTCTCTGGAAAGCATAAAAGTATAATATCTGT  
 TAAAAGTTGGATGAATGAAC TAATGAACGCAATGGGATTCCAGAAAAT  
 CTGCGGGAGATGGGCTAGAGGACGAGGAGGAGGTGGATGAATCAGCCA  
 TGTTAGAGAGCCTGGGAAGGTGAGCAGAGTTGAAAATTTGATAG  
 ATCTAATAATTTACTGGCTCTGGGTTTGTCTAGTCACTACATTGCAGCAAA  
 TGAGATTAGAGCATAGTTGTGGGAGGGAAGGAGGTGACGCAGCAATCTA  
 TTTGCACCTAGAAATTTTAGGCAAGTGATAGCTGCGTAATCATACTGCGG  
 CACCGTTTTTTTTCTTGCAGCAGTAGCTGCTTGCGGAGGAGGTCTGCAC  
 TGCAGCTCTCTGCAGTCTCCGGCTCTCTCCTGCAGGATCGGTCAACGCAG  
 CCGTCGCCGCCCTCTGCACCCAGCCCAGGTGCGCACTGCTTCAGTCCGGT  
 TCTCAAAGCCTCAGCACCATCTTTTATCCCCGAGCAGCCTGGATCGTTCGT  
 TCCCTCAGTCCGGACGCCACTGCTAGGTCCGACCACCGCCGCTTCTGATA  
 TTTTCGGTGAGTCTTTTCTGTGGAGGTTTGGTCTCCCGATCTCTGTGGTA  
 GCCACCTTAGGCGTGTACGGTCCTTTGAAAA

**FIG. 10**

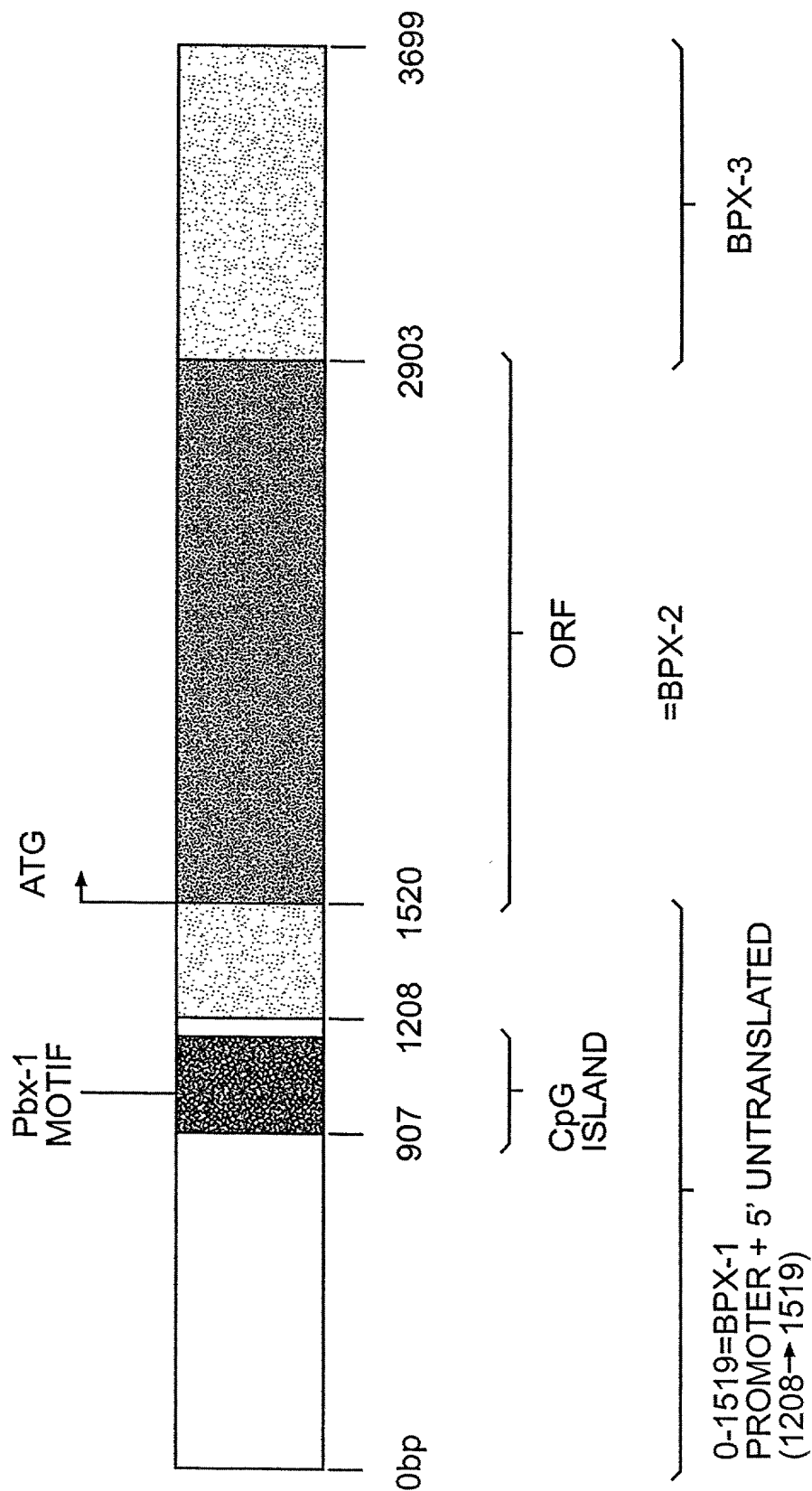


**FIG. 11A**      **FIG. 11B**      **FIG. 11C**



**FIG. 11D   FIG. 11E   FIG. 11F   FIG. 11G**

# GENOMIC STRUCTURE OF THE NAP1L2 GENE



**FIG. 12**